AMENDMENTS TO THE SPECIFICATION:

Please amend the specification as follows.

Please amend the paragraph beginning at page 5, line 20, as follows:

In Formula (1), TCC denotes a Transmission Cross Coefficient; I(t) denotes a light beam intensity in a position coordinate "t"; M denotes ~~Foulier~~ a Fourier transform of a mask complex transmission rate distribution in a frequency plane; M* denotes a complex conjugate of ~~Foulier~~ the Fourier transform of the mask complex transmission distribution in the frequency plane; "i" denotes an imaginary unit; and ω and ω' denote angular frequencies.

Please amend the paragraph beginning at page 6, line 5, as follows:

Subsequently, M(ω), the Fourier ~~Foulier~~ transform of complex amplitude transmission distribution of the design pattern is carried out, and M(ω') is determined (step S62).

Please amend the paragraph beginning at page 6, line 12, as follows:

Then, a product of the formula in step S63 and exp (i(ω - ω')t) which is the reverse ~~Foulier~~ Fourier transform in step S63 is integrated with respect to ω, ω' (step S64).

Please amend the paragraph beginning at page 7, line 7, as follows:

In the above-described conventional method of calculating an edge deviation quantity, the light beam intensities in the position coordinates t_5 and t_6 of the two evaluation points 51 and 52 are calculated by the above-described Hopkins Formula. In this case, it is required to calculate the reverse ~~Foulier~~ Fourier transform of an angular frequency distribution at each of the position coordinates. In particular, calculation of a trigonometric function $(\cos(\omega - \omega')t - i\sin(\omega - \omega')t)$ expanding a portion of $\exp(i(\omega - \omega')t)$ on which a great calculation load is applied is carried out two times. Thus, there has been a problem that much time is required for calculation of the trigonometric function, and an edge deviation quantity cannot be calculated with high precision for a short period of time.

Please amend the paragraph beginning at page 24, line 27, as follows:

Namely, assuming that a time required for calculating light beam intensity of two evaluation points is 2, a time required for calculating light beam intensity at one evaluation point and a differentiation value at the evaluation point is about 1.1. Thus, according to the present embodiment, a time required for calculating light beam intensity is reduced to about 1/2 of the conventional calculation time. This calculation time can be further reduced if computer performance is improved and the calculation method is more sophisticated. A rate of calculation times in a case of obtaining ~~Foulier~~ the Fourier transform two times and a case of carrying out ~~Foulier~~ the Fourier transform one time and referring to that differentiation coefficient is maintained to be about 2 : 1 regardless of other factors.

Please amend the paragraph beginning at page 40, line 9, as follows:

For example, in each of the described embodiments, a product of a coefficient $(i(\omega - \omega'))^n$ attained when a differentiation value of a light beam intensity in the vicinity of an evaluation point has been calculated with an angular frequency distribution component is first calculated, and then the light beam intensity is obtained by carrying out the reverse ~~Foulier~~ <u>Fourier</u> transform. However, it is possible to produce a plurality of TCCs of differentiated form in advance, and <u>to</u> carry out <u>the</u> reverse ~~Foulier~~ <u>Fourier</u> transform by referring to these TCCs. This method can reduce a calculation load, and it is particularly desirable when a light beam intensity in a wide range is calculated.